REMARKS/ARGUMENTS

The Office Action mailed December 15, 2003 has been reviewed and carefully considered. Claims 1-16 and 22 are canceled. Claims 17-21 and 23-32 are pending in this application, with claims 17 and 27 being the only independent claims. Reconsideration of the above-identified application, in view of the following remarks, is respectfully requested.

In the Office Action mailed December 15, 2003, Claims 17, 23, 24, and 27 stand rejected under 35 U.S.C. §103 as unpatentable over U.S. Patent No. 5,560,939 (Nakagawa). Claims 17 and 27 are the only independent claims. The remainder of the claims stand rejected as unpatentable over Nakagawa in view of various other references.

Independent claims 17 and 27 recite a first drive for moving one of the mold plates of a mold, a first mold insert in one of the plates, a second movable mold insert arranged in the mold, and a second drive for moving the movable insert relative to the first mold insert when the first and second plates are held together. More specifically, the recited drives are threaded screw drives which ensure a high accuracy of replication.

The Examiner alleges that Nakagawa discloses the second threaded screw for compressing the molding composition in the cavity because the movement of the clamping cylinder during operation causes movement of an assembly which applies pressure to the insert. More specifically, the Examiner alleges that the insert is moved by an independent assembly resulting in compression of the molding composition which teaches the claimed invention.

It is respectfully submitted that independent claims 17 and 27 are allowable over Nakagawa because Nakagawa fails to teach or suggest (1) two separate drives for moving the mold plates and moving the insert during molding to apply compression to the molded part, and (2) that a threaded screw drive assembly is used to create clamping pressure during molding.

The mold assembly disclosed by Nakagawa includes a top mold 1 and a bottom mold 2 (see col. 4, lines 5-17 of Nakagawa). The top mold 1 has a mold body 4 which includes a guide member 5 and mold plates 6 and 7. The bottom mold 2 has a mold body 8 which includes an insert guide member 9 and a mold plate 10. The mold assembly includes two cavities 3 found between the top mold 1 and the bottom mold for molding lines. Two inserts 11 are arranged in the top mold 1 corresponding to two inserts 12 arranged in the bottom mold 2.

The bottom mold 2 is stationary and the top mold 1 is movable (col. 4, lines 20-22). The mold body 4 of the top mold 1 is connected to a mold mounting member 16 (col. 4, lines 22-25). A clamping cylinder (not shown in the drawings) provides a downward clamping force on the mold mounting member 16 (col. 4, lines 27-31). A further cylinder, (also not shown) presses the mold mounting member 16 against the force of the clamping cylinder to form space S between the mold mounting member 16 and the mold body 4 (col. 4, lines 40-44).

A hydraulic cylinder 19 in the mold mounting member, a piston rod 21 of piston 20, a back insert 22, and a T-shaped clamp member 23 in the hydraulic cylinder 19 and a T-shaped groove 24 in the insert 11, form a top mold insert clamp movement means 25 for clamping the insert in an operational position (col. 4, lines 45 to col. 5, line 11). A similar bottom mold insert clamp movement means 31 is provided in the bottom mold 2 for the insert 12 (col. 5, lines 13-32).

An eject means 34 including pressure recurring member 32 for ejecting is fixed to the top end of the hydraulic cylinder 19 (col. 5, lines 11-44). An eject rod (not shown) may be used to press down on pressure receiving member 32, which pressure down the hydraulic cylinder 19 and insert 11 to eject a molded lines (col. 5, lines 44-50). Accordingly, the eject means 34 uses the top mold insert clamping movement means 25.

During operation, the top mold 1 is lowered by the clamping cylinder and the top and bottom molds 1, 2 are clamped so that the space S between the mold body 4 of the top mold 1 and mold mounting member 16 is eliminated (col. 9, lines 41-45). Molten resin is then inserted in the cavities 3 and the mold mounting member 16 is raised by the lower cylinder against the force of the clamping cylinder by the valve of space S (col. 9, lines 45-53). As the molten resin in the cavities gradually solidifies, the molten resin is exposed to a pressure force from insert 11 by the clamping force of the clamping cylinder 1 (col. 9, lines 60-65).

After molding is complete, the top and bottom molds are parted by clamping cylinder and the molded pieces may be ejected using the ejecting means 34 (col. 9, line 66 to col. 10, line 7).

Accordingly, the clamping cylinder of Nakagawa is a single drive used both for moving the top and bottom molds 1, 2 into the operating position and for moving the insert during the molding process. Even if the clamping cylinder of Nakagawa moves two different assemblies, which it does not, to perform the two functions, it is still one single drive which is used to effect these functions. Accordingly, Nakagawa fails to teach or suggest the use of a separate drive for each function, i.e., moving the top and bottom molds into the operating position and for moving the insert during the molding process, as recited in independent claims 17 and 27.

Furthermore, Nakagawa discloses only that the drive is a clamping cylinder. There is no teaching or suggestion that compression force may be applied to the insert using a threaded screw assembly, as recited in independent claims 17 and 27.

In view of the above remarks, it is respectfully submitted that independent claims 17 and 27 are allowable over Nakagawa.

Dependent claims 18-21, 23-26 and 28-32, each being dependent on one of independent claims 17 and 27, are deemed allowable for the same reasons expressed above with respect to independent claims 17 and 27.

The application is now deemed to be in condition for allowance and notice to that effect is solicited.

Respectfully submitted,

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